

U.S. Serial No. 10/666,568
Amendment Dated October 6, 2006
Response To Office Action Dated April 7, 2006

REMARKS

The foregoing amendments and the following remarks are made in response to the Office Action (hereinafter "the Action") dated April 7, 2006. The above-identified patent application was filed September 19, 2003 with claims 1-19. The Examiner issued a restriction requirement dated December 28, 2005. Claims 1-13 were elected on January 27, 2006. The Examiner then issued the Action dated April 7, 2006 in which the Examiner rejected claims 1-3 and 6-13 under 35 U.S.C. §103 and indicated that claims 4, 5 and 14-19 were withdrawn.

Claims 1-19 were pending in this application. Claims 4, 5 and 14-19 have been withdrawn and claim 1 has been amended. In view of the arguments set forth below, claims 1-3 and 6-13 are allowable, and the Examiner is respectfully requested to withdraw the rejections and issue a Notice of Allowance.

L CLAIM REJECTIONS UNDER 35 USC §103

The Examiner rejected claims 1, 2 and 6-13 under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 5,302,415 to *Gabara et al.* in view of United States Patent No. 4,204,013 to *Arscilesi et al.* The Examiner stated that *Gabara et al.* discloses the elements of the claimed invention but failed to disclose contacting the pre-metallized organic substrate with Na₄EDTA prior to placing the substrate into the electroless silver bath. The Examiner stated that *Arscilesi et al.* discloses use of an Na₄EDTA treatment

{WP340407,11}

U.S. Serial No. 10/666,568
Amendment Dated October 6, 2006
Response To Office Action Dated April 7, 2006

prior to electroless plating plastic substrates and after sensitization in a stannous chloride solution acts to accelerate the deposition during the electroless process and make the substrate more receptive to electroless plating. The Examiner concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify *Gabara et al.* to include an acceleration step as disclosed by *Arcilesi et al.* with an expectation that this step would accelerate the electroless deposition and make the substrate more receptive to the plating process.

However, *Gabara et al.* does not disclose all of the limitations of claim 1. In particular, *Gabara et al.* first discloses exposing yarn to sulfuric acid having a concentration between 67 percent and 87 percent, as shown in Table 4 of *Gabara et al.* Such a high concentration of sulfuric acid etches the outer surface of the yarn discloses in *Gabara et al.* Furthermore, such a high concentration of sulfuric acid would melt the substrate in the claimed invention, thereby making the substrate unusable. In contrast, claim 1 states, in relevant part, "scouring the organic substrate to prepare clean the surface for pre-metallization . . ." The word scouring itself means to clean, not etch is the case using the sulfuric acid at the concentrations disclosed in *Gabara et al.* Furthermore, the claim has been further clarified by replacing "prepare" with "clean". Thus, *Gabara et al.* does not disclose cleaning an outer surface of a material before metallization; rather, discloses etching an outer surface.

U.S. Serial No. 10/666,568
Amendment Dated October 6, 2006
Response To Office Action Dated April 7, 2006

Arcilesi et al. discloses use of an accelerator, such as those identified in a group of materials as being a mono, di, tri, and tetra alkali salts of EDTA. *Arcilesi et al.* states at column 3, lines 12-21

"[t]he resultant etched substrate is thereafter activated with an acidic tin-palladium complex and is rinsed. The activated plastic substrate thereafter is contacted with an improved accelerating solution containing an aqueous soluble compatible substituted alkylamine which is present in an amount effective to complex substantially all of any contaminating reducible metal ions present, such as cupric and ferric ions, to extract any residual tin constituents present on the surface of the activated substrate" (emphasis added).

In contrast, claim 1 is directed, in relevant part, to "plating the pre-metallized, organic substrate with silver, which comprises: (i) contacting the pre-metallized, organic substrate with a complexer, such as an aqueous Na₄EDTA solution, for a controlled rate of release of silver and to prevent a rapid bath decomposition . . ." The aqueous Na₄EDTA solution of claim 1 is not used as an accelerator. Rather, the aqueous Na₄EDTA solution is used as a complexer for a controlled rate of release of silver and to prevent a rapid decomposition of the bath. In the claimed invention, the aqueous Na₄EDTA solution is added before the step of "contacting the pre-metallized, organic substrate with an additional aqueous, silver salt solution to effect deposition of a silver oxide on the organic substrate, wherein the silver salt solution further includes a complexing agent . . ." Because the aqueous Na₄EDTA solution of the instant invention prevents rapid bath decomposition, and is not used as an accelerator,

U.S. Serial No. 10/666,568
Amendment Dated October 6, 2006
Response To Office Action Dated April 7, 2006

as disclosed in *Arcilesi et al.*, it would not have been obvious to one of ordinary skill in the art at the time of the invention to combine the aqueous Na₄EDTA solution disclosed in *Arcilesi et al.* with *Gabara et al.* to control the rate of release of silver and to prevent a rapid bath decomposition. There is no suggestion in *Arcilesi et al.* for use of the aqueous Na₄EDTA solution to control the rate of release of silver and to prevent a rapid bath decomposition. Thus, the combination of *Arcilesi et al.* with *Gabara et al.* is improper.

Furthermore, "Electroless Plating Fundamentals & Applications" by Mallory et al., Published by the American Electroplaters and Surface Finishers Society, Inc. states on page 388 in regards to accelerators

"[a]fter rinsing following the activator, metallic palladium is present on the surface of the part surrounded by hydrolyzed stannous hydroxide. The excess stannous hydroxide must be removed from the part before the palladium can act as a catalyst.

The role of an accelerator is just that. It is to remove the excess tin from the part while leaving the palladium sites intact for the deposition of the electroless bath. Tin will inhibit the action of the electroless bath, resulting in skip plate . . .

Accelerators are usually run at 100 to 140 degrees Fahrenheit for 2 to 5 minutes."

In contrast, *Gabara et al.* discloses at Example 3 in column 8, that "[t]he plating solution was kept at about five degrees Celsius. Furthermore, *Arcilesi et al.*, at column 6, lines 51-54 and the textbook quoted above state that accelerators are used at a much higher temperature range. In fact, *Arcilesi et al.*, at column 6, lines 51-54 states that the accelerator

{WP340407.1}

U.S. Serial No. 10/666,568
Amendment Dated October 6, 2006
Response To Office Action Dated April 7, 2006

is used "at a temperature of about 135 degrees Fahrenheit and 150 degrees Fahrenheit . . ."

Thus, the disclosures of *Arcilesi et al.* and *Gabara et al.* sharply contradict each other in preferred temperature ranges and differ greatly from the temperature range of the instant invention, which is performed at ambient temperature. Therefore, it would not obvious for one of ordinary skill in the art at the time the invention was made to combine *Arcilesi et al.* and *Gabara et al.* Thus, for at least these reasons, *Arcilesi et al.* and *Gabara et al.* do not render obvious claims 1-3 and 6-13, and the Examiner is respectfully requested to withdraw the rejection.

The Examiner also rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over *Gabara et al.* in view of *Arcilesi et al.*, further in view of United States Patent No. 4,312,913 to *Rheume*. Claim 3 depends from claim 1, which is patentable for the reasons previously set forth. Thus, claim 3 is patentable as well, and the Examiner is respectfully requested to withdraw the rejection.

II. PETITION FOR THREE MONTH EXTENSION OF TIME

This is a Petition for a three Month Extension of Time pursuant to 37 CFR § 1.136. Please charge the fee in the amount of \$1020.00 for a three (3) month extension of time pursuant to 37 CFR § 1.17(a)(2) and charge any underpayment or credit any overpayment to Deposit Account No. 50-0951. A duplicate copy of this communication is enclosed.

(WP340407,1)

U.S. Serial No. 10/666,568
Amendment Dated October 6, 2006
Response To Office Action Dated April 7, 2006

CONCLUSION

For at least the reasons given above, claims 1-3 and 6-13 define patentable subject matter and are thus allowable. Should the Examiner believe that anything further is necessary in order to place the application in better condition for allowance, the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

No fees, in addition to the extension of time, are believed due; however, the Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 50-0951.

Respectfully submitted,



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{WP340407.1}